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ISCHAEMIC HEART DISEASE

N-acetylcysteine and nephropathy ► Patients with acute myocardial infarction undergoing primary angioplasty are at high risk for contrast medium induced nephropathy because of haemodynamic instability and the need for a high volume of contrast medium. N-acetylcysteine (NAC) has been tested in elective percutaneous coronary intervention and may prevent nephropathy. A total of 354 consecutive patients undergoing primary angioplasty were randomised to one of three groups: 116 patients were assigned to a standard dose of NAC (a 600 mg intravenous bolus before primary angioplasty and 600 mg orally twice daily for the 48 hours after angioplasty), 119 patients to a double dose of NAC (a 1200 mg intravenous bolus and 1200 mg orally twice daily for the 48 hours after intervention), and 119 patients to placebo. The serum creatinine concentration increased 25% or more from baseline after primary angioplasty in 39 of the control patients (33%), 17 of the patients receiving standard dose NAC (15%), and 10 patients receiving high dose NAC (8%, $p < 0.001$). Overall in-hospital mortality was higher in patients with contrast medium induced nephropathy than in those without such nephropathy (26% *v* 1%, $p < 0.001$). Thirteen patients (11%) in the control group died, as did five (4%) in the standard dose NAC group and three (3%) in the high dose NAC group ($p = 0.02$). The rate for the composite end point of death, acute renal failure requiring temporary renal replacement therapy, or the need for mechanical ventilation was 21 (18%), 8 (7%), and 6 (5%) in the three groups, respectively ($p = 0.002$).

▲ Marenzi G, Assanelli E, Marana I, *et al*. N-acetylcysteine and contrast-induced nephropathy in primary angioplasty. *N Engl J Med* 2006;**354**:2773–82.

Diabetes: cardiovascular risk starts 15 years younger ► There is no such thing as primary prevention in a diabetic patient. Adults with diabetes are thought to have a high risk of cardiovascular disease (CVD), irrespective of their age. The main aim of this study was to find out the age at which people with diabetes develop a high risk of CVD, as defined by: an event rate equivalent to a 10 year risk of 20% or more; or an event rate equivalent to that associated with previous myocardial infarction. All adults with (n = 379 003) and without (n = 9 018 082) diabetes mellitus living in Ontario, Canada, on 1 April 1994 were followed up to record CVD events until 31 March 2000. The transition to a high risk category occurred at a younger age for men and women with diabetes than for those without diabetes (mean difference 14.6 years). For the outcome of acute myocardial infarction, stroke, or death from any cause, diabetic men and women entered the high risk category at ages 47.9 and 54.3 years, respectively. With a broader definition of CVD that also included coronary or carotid revascularisation, the ages were 41.3 and 47.7 years for men and women with diabetes, respectively. Diabetes confers an equivalent risk to aging 15 years. However, in general, younger people with diabetes (age 40 or younger) do not seem to be at high risk of CVD. Age should be taken into account in targeting of risk reduction in people with diabetes.

▲ Booth GL, Kapral MK, Fung K, *et al*. Relation between age and cardiovascular disease in men and women with diabetes compared with non-diabetic people: a population-based retrospective cohort study. *Lancet* 2006;**368**:29–36.

HEART FAILURE

The inherited tendency to heart failure ► The authors examined the cross-sectional association of heart failure in parents with prevalence of left ventricular systolic dysfunction, as well as left ventricular mass, internal dimensions, and wall thickness, in 1497 participants of the Framingham Offspring Study (mean age 57 years; 819 women) who underwent routine echocardiography. As compared with the 1039 participants whose parents did not have heart failure, the 458 participants in the cross-sectional cohort who had at least one parent with heart failure were more likely to have increased left ventricular mass (17.0% *v* 26.9%), left ventricular internal dimensions (18.6% *v* 23.4%) and left ventricular systolic dysfunction (3.1% *v* 5.7%); the multivariable adjusted odds ratios were 1.35 (95% confidence interval (CI) 0.99 to 1.84), 1.29 (95% CI 0.96 to 1.72), and 2.37 (95% CI 1.22 to 4.61), respectively. In the longitudinal cohort, heart failure developed in 90 offspring during follow-up (mean length of follow-up, 20 years). The age- and sex-adjusted 10 year incidence rates of heart failure were 2.72% among offspring with a parent with heart failure, as compared with 1.62% among those without a parent with heart failure. This increase in risk persisted after multivariable adjustment (hazard ratio 1.70, 95% CI 1.11 to 2.60).

▲ Lee DS, Pencina MJ, Benjamin EJ, *et al*. Association of parental heart failure with risk of heart failure in offspring. *N Engl J Med* 2006;**355**:138–47.

GENERAL CARDIOLOGY

Avoid ACE inhibitors in early pregnancy ► Use of angiotensin converting enzyme (ACE) inhibitors during the second and third trimesters of pregnancy is contraindicated because of their association with an increased risk of fetopathy. In contrast, first trimester use of ACE inhibitors has not been linked to adverse fetal outcomes. The authors studied a cohort of 29 507 infants enrolled in Tennessee Medicaid and born between 1985 and 2000 for whom there was no evidence of maternal diabetes. They identified 209 infants with exposure to ACE inhibitors in the first trimester alone, 202 infants with exposure to other antihypertensive medications in the first trimester alone, and 29 096 infants with no exposure to antihypertensive drugs at any time during gestation. Major congenital malformations were identified from linked vital records and hospitalisation claims during the first year of life and confirmed by review of medical records. Infants with only first trimester exposure to ACE inhibitors had an increased risk of major congenital malformations (risk ratio (RR) 2.71, 95% CI 1.72 to 4.27) as compared with infants who had no exposure to antihypertensive medications. In contrast, fetal exposure to other antihypertensive medications during only the first trimester did not confer an increased risk (RR 0.66, 95% CI 0.25 to 1.75). Infants exposed to ACE inhibitors were at increased risk for malformations of the cardiovascular system (RR 3.72, 95% CI 1.89 to 7.30) and the central nervous system (RR 4.39, 95% CI 1.37 to 14.02).

▲ Cooper WO, Hernandez-Diaz S, Arbogast PG, *et al*. Major congenital malformations after first-trimester exposure to ACE inhibitors. *N Engl J Med* 2006;**354**:2443–51.

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